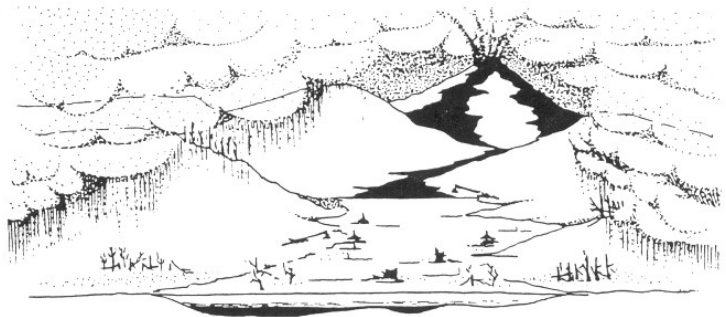


The Geologic Formation of Florissant Fossil Beds National Monument



In the Florissant Valley of 34-35 million years ago, the climate was much warmer than today. The vegetation was composed of numerous extinct species of broadleaved deciduous trees, such as hickory, fagopsis (an extinct genus in the beech family), maple, oak, and walnut; and broadleaved evergreen trees such as avocado. There were also extinct evergreen species of conifers such as pine, white cedar, and sequoia. Because of the warm, humid climate, insect species were diverse and abundant.

A huge volcanic complex (the Guffey volcano) towered above the valley, about 16 miles to the southwest.



A volcanic mudflow inundated the valley, burying the lower trunks of sequoia and other trees that grew along the valley bottoms. The tree trunks became petrified as silica from the mudflow seeped in and crystallized in between the cell walls of the wood. The volcanic mud hardened into a rock called tuff.

These mudflows also dammed the stream that flowed through the valley, forming a large lake. Years of subsequent eruptions showered the landscape with volcanic ash and pumice. This fine-grained ash washed in the lake with each rainfall and slowly accumulated in the bottom, along with other sediments. The remains of plants and insects were buried in the lake bottom sediments; later these compacted into carbonized compression and impression fossils in a lakebed shale.





After many years, a slower volcanic mudflow containing a mixture of water, volcanic debris, ash, mud, sand, pebbles, and cobbles flowed into the lake and formed a widespread conglomerate layer over the layers of shale. This has been called the "caprock"; it overlaid the lower shales and protected them from erosion for millions of years.



The valley now looks like many other high mountain meadows, but forces of erosion have started to reveal some of the petrified trees and the lakebed fossils. This has allowed paleontologists to begin studying this extinct ecosystem of 34-35 million years ago.

